

TORREYA

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NOTES ON THE BOLETI OF WEST VIRGINIA

BY HENRY C. BEARDSLEE

Brookside, West Virginia, is situated in the heart of a mountainous region at an altitude of 3,100 feet. Its surface is much varied and presents all the conditions for an abundant fungus flora, which it was the writer's good fortune to study during the past summer.

Many of the species observed were of great interest to a northern botanist; the Boleti, especially, presenting many forms which are either rare or unknown to our own State of Ohio. In all, nearly forty species were observed. Many of these were common and well known to all students of the group. Some, however, were comparatively rare, and the following notes in regard to them have been collated, as of possible interest to students in other regions.

Boletus auriflammeus B. & C. was one of the first species of interest to be observed. Like all the Pulverulenti, it is very rare, but as all three of our species were originally discovered in the Carolinas, it was with more of pleasure than surprise that it was observed in West Virginia. It grew by preference in dry gravel high on the mountain-sides, and was remarkably arid, being less perishable than any other species observed. It is a small plant, bright golden yellow in color, and thickly covered with a yellow powder, which disappears with age. This powder in the younger plant colors the mouths of the tubes, giving them a distinct orange tint, which contrasts plainly with the remainder of the tubes.

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This would seem to explain the reference, in the original description, to the scarlet mouths of the angular tubes, which certainly does not otherwise apply to our plant.

Boletus Ravenelii B. & C., another member of the *Pulverulenti*, was rather more common than the preceding species and almost as striking. It was frequently found with its large fluffy veil intact, and thickly covered with its sepia-brown spores. Its slender flexuous stipe was a marked characteristic of the form at Brookside.

Boletus cyanescens Bull. has been considered a northern species, but it was not rare along the mountain roads. The first specimen observed was just emerging from the bare soil on the roadside. Its yellow tomentum was so characteristic and its appearance so distinct that it was visited daily as it slowly developed, though with no suspicion of its identity. It was afterward found fairly abundant, but always in the clay-banks, along the roads, with which its grayish yellow color harmonized perfectly.

Among the rosy spored species *Boletus alutarius* Fr. and *Boletus nigrellus* Pk. were the most interesting, and *Boletus gracilis* Pk. the most abundant.

Boletus nigrellus Pk. was observed in all its stages and differed so widely from the original description, that it seemed at first distinct. It was at first "blackish" in color, but soon changed to a sordid gray. Its flesh, however, was decidedly not "white and unchangeable," as the entire plant, when handled or bruised, blackened rapidly, the dried specimens being inky black. Professor Peck, who has examined my specimens, pronounces them identical with his species, so that it is evident that the original description must be modified.

Boletus alutarius Fr. grew all summer in turf beneath the same chestnut tree, where it was kept under observation. It is an attractive plant, unlike any of its relatives. In its earlier stages it has a distinct pubescence, but it becomes quite smooth with age.

Peck's two fine species, *Boletus separans* and *Boletus eximius*, were generally distributed on the hillsides, but neither was common. *Boletus eximius* Pk. fell far below the huge dimensions of this species as we have found it in Maine.

Boletus edulis Bull., to our great surprise, was scarcely seen all summer. *Boletus affinis* Pk. was abundant everywhere.

The two species which were most abundant were *Boletus chromapes* Frost and *Boletus bicolor* Pk. The latter species was particularly common along the sandy roads, where its dark red pilei might be seen often in large clumps attracting the eye of every passer-by.

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REMARKS ON THE USE OF FUNARIA HYGROMETRICA IN BOTANICAL TEACHING

BY MARSHALL A. HOWE

The common cord-moss (*Funaria hygrometrica*) figures so prominently in well-known botanical text-books that little or nothing needs to be said as to the characters by which it may be recognized. It may be remarked, however, that this moss grows by preference on moist sandy soil in either open or lightly shaded places and that it thrives with special luxuriance where such soil has been recently burned over. Though the leaves of the living *Funaria* have long been famed for the beauty and clearness with which their chloroplasts are exhibited, the gametophyte, on account of the shortness of the stem, is perhaps not so well adapted for general study in the laboratory as is that of some of the larger mosses like the Mniums. Yet, for spring classes, *Funaria* may be relied upon to furnish material for the demonstration of living spermatozoids. The clusters of antheridia may be recognized in the living plants with the naked eye or with the aid of a hand lens. They are of a yellowish or brownish color owing to changes in the chloroplasts of the cells composing the walls of the maturing antheridia, and each cluster is surrounded by leaves in such a way that the whole is rosette-like in form. In the region of New York, the antheridia are mature late in April or early in May. As in dealing with fern prothalli, the spermatozoids are set free with greater certainty if the plants are kept rather dry for a day or two before the antheridia are brought into a drop of water for examination.